

REMARKS

Claims 1-4, following entry of this Amendment, are all the claims pending in the application. Claims 1-3 have been rejected under 35 U.S.C. § 112, first and second paragraphs, as failing to be supported by the original specification or drawings. Claims 1 and 2 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art (hereinafter "APA") in view of Hiroshima et al. (U.S. Patent No. 5,174,013) (hereinafter "Hiroshima") and Harris et al. (U.S. Patent No. 5,539,265) (hereinafter "Harris '265"), and further in view of Meier (U.S. Patent No. 3,320,788). Claim 3 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over APA in view of Hiroshima, Harris '265 and Meier, and further in view of Harris et al. (U.S. Patent No. 5,892,313) (hereinafter "Harris '313").

FORMALITIES

The specification has been objected to under 37 C.F.R. § 1.71 for failing to support the new limitations added to claim 1. Applicant respectfully directs the Examiner to page 10, lines 5-17 of the specification. Specifically, to the text stating "dispersion of the multi-layered portion in the axial direction of the bobbin is reduced and therefore the multi-layered portion of the field winding 20 can be formed with a uniform diameter without eccentricities" and "spacing between portions of the field winding 20 in the radial direction is practically reduced to zero."

Moreover, the field winding mounting portion corresponds to the U-shaped portion constructed with the cylindrical portion 16a and the first and second annular flanges 16b. As clearly illustrated in Figures 1 and 4-5, a radial length of the U-shaped portion is shorter than an

axial length thereof. Accordingly, support is found for the new limitation added to claim 1 in the disclosure.

The Examiner has rejected claims 1-3 under 35 U.S.C. § 112, first and second paragraphs, as failing to be supported by the specification or drawings. As discussed above, support is found for the new limitations added to claim 1 in the specification at page 10, lines 5-17 and Figures 1 and 4-5.

PRIOR ART REJECTIONS

Analysis

The Examiner has rejected claims 1 and 2 under 35 U.S.C. § 103(a) as being unpatentable over APA in view of Hiroshima and Harris '265, and further in view of Meier. The Examiner avers that the APA/Hiroshima/Harris '265 (3-reference) combination teaches or suggests the claimed invention with the exception of Applicant's "field winding mounting portion of said bobbin which said field winding is wound is constructed by shortening a length thereof in the radial direction than that thereof in an axial direction of said cylindrical portion" (which has been rewritten to recite --said bobbin is formed to have a field winding mounting portion in which a radial length thereof is shorter than an axial length thereof--). The Examiner relies on Meier to remedy this deficiency.

While the Examiner alleges that Meier makes up for the deficiency of the 3-reference combination, there are several problems with the APA/Hiroshima/Harris '265/Meier (4-reference) combination.

First, Meier fails to teach or suggest, and the Examiner has failed to identify such a teaching or suggestion, that “said bobbin is formed to have a field winding mounting portion in which a radial length thereof is shorter than an axial length thereof,” as required by claim 1. Conversely, in the claimed invention, the bobbin 16 is formed to have a field winding mounting portion in which the radial length thereof is shorter than the axial length thereof. The field winding 20 having the flat rectangular shape is wound on the bobbin 16 so that the pair of opposite flat surfaces face the inner circumferential side and the outer circumferential side, respectively, relative to the radial direction of the cylindrical portion 16a. Thus, the radial length of the multiple layers constructed with the field winding 20 is reduced. Consequently, the space formed at the top of the multiple layers is widened, enabling the radial dimension of the rotor to be reduced.

Second, there is no motivation, teaching or suggestion for combining the APA/Hiroshima/Harris ‘265 combination with the Meier reference. Nor is there a motivation, teaching or suggestion for combining any of the prior art references. Meier is concerned with deforming or bending wire with a round cross section into wire with an oval, polygonal or hexagonal cross section via deforming rolls. See column 1, lines 53-64. The Examiner has simply attempted to reconstruct the claimed invention by using hindsight knowledge gleaned from Applicant’s own disclosure. The combination (of 4 different references), as applied by the Examiner, would not have been within the level of ordinary skill at the time the claimed invention was made. Therefore, the Examiner’s conclusion of obviousness appears to be based upon *improper hindsight reasoning*.

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Dependent claim 2 is dependent on independent claim 1, and therefore, should be allowable for the same reasons mentioned above with respect to claim 1.

The Examiner has rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over APA in view of Hiroshima, Harris '265 and Meier, and further in view of Harris '313.


Dependent claim 3 is dependent on claim 1. Applicant submits that claim 3 is allowable for the same reasons mentioned above with respect to claim 1.

Applicant hereinabove add claim 4 to describe features of the invention more particularly. Support can be found in Figures 1 and 4-5.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to **call the undersigned** at the telephone number listed below.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,


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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Four times Amended) A rotor for an automotive alternator comprising:
a pair of field cores each having a cylindrical base portion and a plurality of claw-shaped magnetic poles projecting from outer circumferential edges of said base portions, said field cores are secured to a rotating shaft facing each other wherein end surfaces of said base portions are in close contact with each other and said claw-shaped magnetic poles intermesh with each other;
a cylindrical bobbin having a cylindrical portion and a pair of first and second annular flange portions projecting perpendicularly from both ends of said cylindrical portion, said bobbin being fitted over said base portions of said pair of field cores; and
a field winding wound a predetermined number of turns into multiple layers on said cylindrical portion of said bobbin of said rotor,
wherein said field winding has a flat rectangular shape in which a pair of opposite flat surfaces are parallel,
said field winding is wound onto said cylindrical portion of said bobbin wherein said pair of opposite flat surfaces face the inner circumferential side and the outer circumferential side, respectively, relative to a radial direction of said cylindrical portion, and

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[a field winding mounting portion of said bobbin which said field winding is wound is constructed by shortening a length thereof in the radial direction than that thereof in an axial direction of said cylindrical portion] said bobbin is formed to have a field winding mounting portion in which a radial length thereof is shorter than an axial length thereof.

Please add the following new claim:

--4. The rotor for an automotive alternator according to Claim 1, further comprising a recessed groove formed in an inner surface of said first annular flange portion from an outer circumferential end of said first annular flange portion to an inner circumferential end thereof, wherein a starting portion of said field winding is housed in said recessed groove so as to make said opposite flat surfaces square with an axis of said bobbin.--